| **Question** | | **Working** | **Answer** | **Mark** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| 1 |  |  | 3*a* + 7*b* | 2 | B2 for 3*a* + 7*b* oe  (B1 for 3*a* or 7*b* oe) |
| 2 (i)  (ii)  (iii) |  |  | 11931  11931  123 | 3 | B1 cao  B1 cao  B1 cao |
| 3(a)  3(b)  3(c) |  |  | Points plotted  Positive  155 - 165 | 1  1  2 | B1 for correct points plotted ± 0.5 square  B1 for positive correlation  B2 for an answer in the range 155 – 165  (B1 for a line of best fit drawn if answer outside the range) |
| 4 |  | 30 × 30 × 80 ÷ 6 × 6 × 10  72000 ÷ 360  Or  30 ÷ 6 × 30 ÷ 6 × 80 ÷ 10  5 × 5 × 8 | 200 | 3 | M1 for 30 × 30 × 80 ÷ 6 × 6 × 10 Or  30 ÷ 6 × 30 ÷ 6 × 80 ÷ 10  M1 for 72000 ÷ 360 Or 5 × 5 × 8  A1 cao |
| \*5(a)  \*5(b) |  |  | Response boxes too vague  No time period or vague response boxes | 1  1 | C1 for a valid explanation  C1 for a valid explanation |
| 6(a)  6(b) |  |  |  | 2  2 | B2 cao  (B1 for a 2x3 rectangle only)  B2 for an accurate 3D sketch  (B1 for a 3D sketch with an “L’- shaped cross section) |
| 7 (i)  (ii) |  | 180 – 113 | 67  corresponding (alternate) angles  angles on a straight line sum to 180o | 4 | M1 for 180 – 113  A1 cao  B1 for corresponding (alternate) angles  B1 for angles on a straight line sum to 180o |
| 8(a)  8(b) |  |  | Diagrams drawn, bar charts, pie charts, frequency polygon, stem & leaf  German marks higher than French marks, for example | 3  1 | B3 for fully labeled comparative diagrams  (Deduct one mark for each omission or error type)  B1 for any correct comparison made |
| 9 |  | Sports 4 all: 5 + 4.5 x 12 = £59  Edexcel: 70 x 4/5 = £56  Keef’s: 50 x 1.2 = £60 | Edexcel Sports gives the best deal since £56 is the least cost | 5 | M1 for 5 + 4.5 x 12  M1 for 70 x 4/5  M1 for 50 x 1.2  A1 for fully correct arithmetic  C1 ft for Edexcel Sports supported by ‘correct’ prices |
| 10 |  |  | 42 cm3 | 3 | B3 for fully correct diagram  (B2 for 4 out of 6 squares correctly placed,  B1 for 2 out of 6 squares correctly placed) |
| 11 |  | Stuart: *r ×* 4 + *b ×* 1 = 4*r* + *b*  Helen: 2 *×* 4 + 2*b ×* 1 = 8 + 2*b* | 4*r* + 3*b* + 8 | 4 | M1 for *r ×* 4 + *b ×* 1 (= 4*r* + *b*)  B1 for 2*b* for Helen’s blue cards  M1 for 2 *×* 4 + 2*b ×* 1 (= 8 + 2*b*)  A1 cao |
| 12 |  | *x* + 4 + *x* + 3 + *x* – 1 = 3*x* + 6  3*x* + 6 = 19  3*x* = 13 | 13/3 oe | 3 | M1 for *x* + 4 + *x* + 3 + *x* – 1 (= 3*x* + 6)  M1 for 3*x* + 6 = 19  A1 for 13/3 oe |
| 13 |  | 60000 × 2/100 = 1200  (80000 – 60000) × 1/100 = 200  1200 + 200 | 1400 | 4 | M1 for 60000 × 2/100 (= 1200)  M1 for 80000 – 60000  M1 for ‘80000 – 60000’ × 1/100 (= 200)  A1 cao |
| 14 (i)  (ii) |  | 360 - 140 | 060  220 | 3 | B1 cao  M1 for 360 – 140  A1 cao |
| 15(a)  15(b) |  | =  5 – 2 = 3 | 3 | 2  3 | M1 for changing to a common denominator with at least one correct numerator  A1 cao  M1 for 5 – 2 = 3  M1 for  A1 for 3 oe |
| 16 |  |  | perpendicular | 2 | B2 for a correct perpendicular constructed with accurate intersecting arcs.  (B1 for a perpendicular drawn) |
| 17(a)  17(b) |  |  | 10000 < *x* ≤ 14000  14000 < *x* ≤ 16000 | 1 | B1 cao  B1 cao |
| 18 |  | *x* = (-5 + 7)/2  6 = (1 + *y*)/2 | 1, 11 | 2 | M1 for either *x* = (-5 + 7)/2 or 6 = (1 + *y*)/2  A1 for *x* = 1 and *y* = 11  [B1 for either *x* = 1 or *y* = 11 if M0 scored] |
| 19(a)  19(b)  19(c)  19(d) |  | *t*2 + 5*t* – 4t - 20 | 5(*x* – 2)  2*p*(*p* – 2*q*)  *t*2 + t – 20  -2, -1, 0, 1, 2 | 1  2  2  2 | B1 cao  B2 cao  (B1 for correct partial factorization)  M1 for 3 out of 4 correct terms or 4 terms with incorrect signs only  B2 for all 5 correct integers and no extras  (-1 for each error or omission up to a maximum of -2) |
| 20 |  | N boys 2N girls  3N/5 + 2N/10 = 4N/5  4N/5 ÷ 3N | 4/15 | 4 | M1 for 3N/5 or 2N/10 oe  M1 for 3N/5 + 2N/10 oe  M1 for ‘4N/5’ ÷ 3N  A1 for 4/15 oe |
| 21 |  | 4*x* – 6*y* = 22 15*x* + 6*y* = 74  19*x* = 96  2 x 4 – 3*y* = 11 | *x* = 4, *y* = -1 | 4 | M1 for a correct process to eliminate either *x* or *y* (condone one arithmetic error)  A1 for either *x* = 4 or *y* = -1  M1 (dep on 1st M1) for correct substitution of their found variable  A1 for both *x* = 4 and *y* = -1 |
| 22(a)  22(b) |  | Stars: 4/9 x 3/8 = 12/72  Hearts: 3/9 x 2/8 = 6/72  12/72 + 6/72 = 18/72  1440 x 12/72 x 1.50 = 360  1440 x 6/72 x 2 = 240  1440 – 360 - 240 | ¼  840 | 3  4 | M1 for 4/9 x 3/8 (= 12/72) or 3/9 x 2/8 (= 6/72)  M1 for ‘12/72’ + ‘6/72’  A1 for ¼ oe  M1 for 1440 x 12/72 or 1440 x 6/72  M1 for 1440 x 12/72 x 1.50 (= 360) or  1440 x 6/72 x 2 (= 240)  M1 for 1440 – ‘360’ – ‘240’  A1 cao |
| 23(a)  23(b) |  | Angle *XBD* = 60/2 = 30  Angle *DAC* = 90 – 60 = 30  *AD* = √(22 – 12) = √3  *XD/CD = BD/AD*  *XD/*1 = 1/√3 | Proof  Proof | 2  3 | B1 for all correct anles of 30, 60 and 90 shown  B1 for ‘triangles BXD and ACD have identical corresponding angles, both being 30, 60, 90 degree triangles’ for example  M1 for *AD* = √(22 – 12) (= √3)  M1 for *XD/CD = BD/AD* oe  A1 for completing the proof |
| 24 |  | (*x* – 3)(*x* + 3)  (2*x* + 3)(*x* – 3) | *x* + 3  2*x* + 3 | 3 | M1 for (*x* – 3)(*x* + 3)  M1 for (2*x* + 3)(*x* – 3)  A1 cao |
| 25 |  | 2*t*(√8 - √2) = 64 = 26  2*t*(2√2 - √2) = 26  2*t* x √2 = 26  2*t* x 21/2  = 26  *t* + ½ *=* 6 | 5½ | 5 | M1 for 2*t*(√8 - √2) = 64  M1 for 2*t*(2√2 - √2) = 64  M1 for 2*t* x 21/2  = 26  M1 for *t* + ½ *=* 6  A1 cao |
| 26 |  | 3G, 4R 1G, 3Y  3/7 x 1/4 | 3/28 | 3 | M1 for 3/7 or ¼  M1 for 3/7 x ¼  A1 for 3/28 oe |
| 27 (i)  (ii)  (iii) |  |  | 100  100  4 | 3 | B1 cao  B1 cao  B1 cao |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Quest. | Topic/name | AO1 | AO2 | AO3 | Total |  | FE | Nu | Man Alg | Non  Man alg | G | S | Total#1 | Low | Mid. | High | Total#2 |
| 1 | Simplify | 2 |  |  | 2 |  |  |  | 2 |  |  |  | 2 | 2 |  |  | 2 |
| 2 | Numbercalcs | 3 |  |  | 3 |  |  | 3 |  |  |  |  | 3 | 3 |  |  | 3 |
| 3 | Height/Wt | 2 | 2 |  | 4 |  |  |  |  |  |  | 4 | 4 | 4 |  |  | 4 |
| 4 | Light bulbs | | 3 |  | 3 |  | 3 |  |  |  | 3 |  | 3 | 3 |  |  | 3 |
| 5 | Questionnaire | 2 |  |  | 2 |  | 2 |  |  |  |  | 2 | 2 | 2 |  |  | 2 |
| 6 | 3D sketch | 4 |  |  | 4 |  |  |  |  |  | 4 |  | 4 | 4 |  |  | 4 |
| 7 | Parallel lines | 2 | 2 |  | 4 |  |  |  |  |  | 4 |  | 4 | 4 |  |  | 4 |
| 8 | Languages | | 4 |  | 4 |  |  |  |  |  |  | 4 | 4 | 4 |  |  | 4 |
| 9 | Trainers |  |  | 5 | 5 |  | 5 | 5 |  |  |  |  | 5 | 5 |  |  | 5 |
| 10 | Symmetry | 3 |  |  | 3 |  |  |  |  |  | 3 |  | 3 | 3 |  |  | 3 |
| 11 | Cards |  |  | 4 | 4 |  |  |  | 4 |  |  |  | 4 | 4 |  |  | 4 |
| 12 | Perimeter | |  | 3 | 3 |  |  |  | 3 |  |  |  | 3 | 3 |  |  | 3 |
| 13 | estate agent | |  | 4 | 4 |  | 4 | 4 |  |  |  |  | 4 | 4 |  |  | 4 |
| 14 | Bearings | 3 |  |  | 3 |  |  |  |  |  | 3 |  | 3 | 3 |  |  | 3 |
| 15 | Fractions | 5 |  |  | 5 |  |  | 5 |  |  |  |  | 5 | 2 | 3 |  | 5 |
| 16 | Construction | 2 |  |  | 2 |  |  |  |  |  | 2 |  | 2 |  | 2 |  | 2 |
| 17 | Class intervals | 2 |  |  | 2 |  |  |  |  |  |  | 2 | 2 | 1 | 1 |  | 2 |
| 18 | Midpoint |  | 2 |  | 2 |  |  |  |  | 2 |  |  | 2 |  | 2 |  | 2 |
| 19 | Factorise | 7 |  |  | 7 |  |  |  | 7 |  |  |  | 7 | 1 | 6 |  | 7 |
| 20 | Sporty students | | 4 |  | 4 |  |  | 4 |  |  |  |  | 4 |  | 4 |  | 4 |
| 21 | Sim Equns | 4 |  |  | 4 |  |  |  | 4 |  |  |  | 4 |  | 4 |  | 4 |
| 22 | Summer Fete | | 3 | 4 | 7 |  | 7 | 2 |  |  |  | 5 | 7 |  |  | 7 | 7 |
| 23 | Sim Triang | | 3 | 2 | 5 |  |  |  |  |  | 5 |  | 5 |  |  | 5 | 5 |
| 24 | Alg fraction | 3 |  |  | 3 |  |  |  | 3 |  |  |  | 3 |  |  | 3 | 3 |
| 25 | Ind and Surds | | 5 |  | 5 |  |  | 2 | 2 |  | 1 |  | 5 |  |  | 5 | 5 |
| 26 | sweets |  | 3 |  | 3 |  |  |  |  |  |  | 3 | 3 |  |  | 3 | 3 |
| 27 | Trig graph | 3 |  |  | 3 |  |  |  |  | 3 |  |  | 3 |  |  | 3 | 3 |
|  | Totals | 47 | 31 | 22 | 100 | 0 | 21 | 25 | 25 | 5 | 25 | 20 | 100 | 52 | 22 | 26 | 100 |
|  | Percentage | 47.0 | 31.0 | 22.0 | 100.0 |  | 21.0 |  | Al: | 30 |  |  |  | 52.0 | 22.0 | 26.0 |  |
|  | Foundation % target: | 40-50 | 30-40 | 15-25 |  |  | 30-40 |  |  |  |  |  | Target %: | 50 | 25 | 25 |  |
|  | Higher % target: | 40-50 | 30-40 | 15-25 |  |  | 20-30 |  |  |  |  |  |  |  |  |  |  |